

I. Claim Rejection Under 35 U.S.C. § 103

The Examiner rejected claims 2, 6, 8 and 9 under 35 U.S.C. § 103(a) as being unpatentable over Miyazawa et al. (US 2002/0192143) in view of Beck et al. (Russian Chemical Bulletin), and further in view of Miyazawa, Masuno and Suga (Electron Microscopy). Claim 2 has been cancelled. As applied to claims 6, 8 and 9, Applicants respectfully traverse the rejection.

Claim 6 has been amended to recite “A manufacturing method of fullerene derivative fine wire composed of acicular crystal of a diethyl ester malonate derivative of C₆₀ and fullerene C₆₀, being a manufacturing method of fullerene derivative fine wire at least the steps of preparing a solution by dissolving fullerene C₆₀ in a first solvent, **mixing a solution containing the diethyl ester malonate derivative of C₆₀ with the solution**, adding a second solvent of lower fullerene derivative and fullerene dissolving ability and a first solvent to **this mixed solution**, forming a liquid-liquid interface between the solution and the second solvent, and depositing the fullerene derivative fine wire on the liquid-liquid interface”.

The references do not disclose or suggest the method of amended claim 6.

Miyazawa et al. disclose a method for producing a fine carbon wire comprising a fullerene (see claims 8-19 of the reference). The reference's method requires putting together a solution containing a fullerene dissolved in a first solvent together with a second solvent having less solvency for the fullerene than the first solvent (see claim 8 of the reference). However, the reference does not disclose or suggest a fine carbon wire comprising a fullerene and a fullerene derivative. Thus, the reference fails to disclose or suggest “a diethyl ester malonate derivative of C₆₀ and fullerene C₆₀”, as recited in claim 6.

The reference discloses iodine-doped C₆₀ nanowhiskers (see paragraphs [0262] - [0264]). The iodine-doped C₆₀ nanowhiskers are prepared by a liquid-liquid interface deposition process by adding a solution of iodine in isopropyl alcohol to a C₆₀ solution in toluene. Thus, Miyazawa et al. do not teach mixing a solution containing the iodine with the solution by dissolving fullerene C₆₀ in a first solvent (i.e., toluene) and then adding a second solvent (i.e., isopropyl alcohol) to the mixed solution.

The reason for adding the iodine to the second solvent rather than the first solvent in the reference's method for producing the iodine-doped C₆₀ nanowhiskers is to dope iodine into the C₆₀ nanowhiskers. According to this method, a high density environment of the iodine can be

achieved in a narrow space on a liquid-liquid interface between the first solvent and the second solvent, thereby the iodine is easily trapped in the space between the fullerene molecules.

On the other hand, the reason for “mixing a solution containing the diethyl ester malonate derivative of C_{60} with the solution” (i.e., the solution prepared by dissolving fullerene C_{60} in a first solvent), as recited in claim 6, is completely different. In the claimed invention, “mixing a solution containing the diethyl ester malonate derivative of C_{60} with the solution” is necessary for depositing a fine wire composed of acicular crystal of the diethyl ester malonate derivative of C_{60} and fullerene C_{60} from the mixed solution on the liquid-liquid interface between the mixed solution and the second solvent. Thus, the mixing step in claim 6 permits “forming a liquid-liquid interface between the solution and the second solvent, and depositing the fullerene derivative fine wire on the liquid-liquid interface”, as recited in claim 6. The reference does not disclose or suggest these method steps.

Accordingly, a fullerene derivative fine wire composed of acicular crystal of a diethyl ester malonate derivative of C_{60} and fullerene C_{60} can be manufactured according to the method of claim 6.

The Russia Bulletin and Electron Microscopy references also do not disclose or suggest the method of claim 6.

Accordingly, claim 6 would not have been obvious over the references.

Claims 8 and 9 depend from claim 6, and thus also would not have been obvious over the references.

Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

II. Conclusion

For these reasons, Applicants take the position that the presently claimed invention is clearly patentable over the applied references.

Therefore, in view of the amendments and remarks filed August 19, 2010, and the foregoing remarks, it is submitted that the rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

Respectfully submitted,

Kun'ichi MIYAZAWA et al.

/Andrew B.
Freistein/

By

Andrew B. Freistein
Registration No. 52,917
Attorney for Applicants

ABF/emj
Washington, D.C. 20005-1503
Telephone (202) 721-8200
Facsimile (202) 721-8250
October 19, 2010